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IST-250

11/24/2018

**Google Cloud Platform (GCP) analysis for Knights Men’s Wear**

In a recent internal request from the CFO of our corporation, the IT department was asked to conduct a review and analysis of cloud-based infrastructure from a multitude of providers. Knight’s Menswear has evolved into a large multi-national enterprise and will require a plethora of cloud-based services and applications. As such the security of our transactions, the speed of our services, the scalability of infrastructure, overall cost, and most importantly constant availability of these services are paramount when making a final recondition. This analysis focuses on Google Cloud platform, or GCP for short, one of the most prevalent cloud computing providers available.

GCP has evolved rapidly over the years to become the service it is now, it originally launched with a very limited number of applications and services. In 2008 Google launched Google App engine their first cloud computing platform. This application was different from other web application services at the time being a Platform-as-a-Service application that can be run in a serverless environment, you get a platform where written code (i.e. java or python) is put, this directly interacts with Googles data storage API. This application currently boosts that it prevents worrying about where databases are located, and handling scalability automatically by distributing your apps across webservers and databases. GCP’s main tools for virtualization launched in May of 2013 with a service called Google Compute Engine. This service allows launching virtual machines for Linux and Windows and has many customizations. Intestacies for these virtualizations can be micro 0.3-Cores and 1 GB of RAM and massive, 96-Core CPUs with over 300GB RAM. These services were further improved for enterprise networks with the introduction of Google Kubernetes engine, launched in 2015 the current version is certified by the CNCF. Kubernetes allows you to manage applications in containers. These containers modelized your services and applications, allowing different containers to host the front end of web-apps and different ones host the backend. More services and tools do make up GCP, monitoring tools and other load balancing applications, however the services described above are the primary function of the platform providing virilization; devolvement of code and its distribution, and finally scalability and management tools.

Google is a massive organization with a vast network of resources, GCP gives customers access to Google’s powerful infrastructure. This will provide many benefits for our organization, listed below are some of the most important:

* **High-end Security:** choosing GCP means access to the security google themselves use to secure Gmail and Search. All data is encrypted in transit between Google, the customers, and data centers; as well as the data in all the Cloud Platform services.
* **When Google gets bigger so de we:** Google is an international organization that seeks to provide web services and cloud services to the world. As such when google expands its cloud infrastructure in other countries, we gain the opportunity to provide services to costumers around the world with lower latency.
* **Access to powerful technology**: GPC boosts some of the most powerful equipment available to run virtual machines. As previously mentioned, virtualizations can be micro 0.3-Cores and 1 GB of RAM and massive, 96-Core CPUs with over 300GB RAM. Kinsta, a word press hosting provider stated that “Before the move they [VMs] were getting spikes well over the 1 second range, and after they stayed consistently under 500 ms …. migrating them to Google Cloud Platform they saw a 50% decrease in load times!”
* **Serverless infrastructure:** GCP is a serverless cloud computing platform. This means that the cloud provider acts as the server and is responsible for managing allocation of machine resources. This is achieved with google BigQuery a data warehouse for your analytics and SQL query’s.
* **Price:** As of 2018 Amazon web services is GCP’s largest competition, providing similar services. GCP is better priced, a custom VM with 16 CPUs 30GB RAM 667GB SSD from GCP costs a total of $470.64 a month. A custom VM with 16 CPUs 30GB RAM 500GB SSD from AWS costs a total of $1715.92 a month or $1102.50 for 3 years. The VM provided by GCP is far cheaper, has more SSD space, and has 20K IOPS, AWS is only 16k IOPS.
* **Google as your cloud backbone:** Googles network private network is extremely fast, powerful, connected internationally, and happens to be distributed between all of its datacenters. Meaning our cloud will be using Google’s highspeed fiber optic backbone to communicate. This network contains dedicated fiber connections to other countries that can handle up to 10Tbps.
* **Dedication to up time:** GCP has many tools and features to help prioritize the accessibility of your clouds services. Features such as live migration allow you to migrate a VM that is currently running without brining it down, allowing you to push updates on time. Another benefit provided by GCP relating to migration and updating is that do to the serverless infrastructure Google’s highly trained engineers make sure your code is applied and machines rebooted appropriately.
* **Redundancy:** GCP offers many classes of storage, but the best is multiregional storage. It claims 99.99% durability. This system creates buckets worldwide and stores data pieces redundantly across multiple disks located in different power and network failure domains. ensuring with high probability your data survives critical failure.

GCP is an impressive comprehensive cloud computing platform but choosing this provider does come with potential risks. GCP as a complete service is still in beta, a large portion of the serveries and applications its uses have been certified but some are still in development. Any update to a component of the API that delivers our code could cause unforeseen bugs, that could eventually lead to a total failure. Due to the serverless infrastructure it’s up to google to identify these issues. The most effective way to deal with these issues most likely requires buying the premium support package and the previously mentioned multiregional storage for Redundancy. This would hopefully ensure our data can be recovered from total failure, and 24x7 support from google engineers.

Google Cloud Platform provides a robust suit of services, delivered and developed by one of the worlds leaders in web services and applications. Google maintains one of the largest, fastest privet private fiberoptic networks with highspeed connections worldwide. GCP has the privilege of using a security and encryption system developed and used by Google for over 15 years. Virtual machines with GCP on average cost 50% less than AWS, its closest competitors. Even with Risk associated with GCP being in beta Google provides stellar redundancy in its multi-regional storage option. In conclusion I would highly recommend Google Cloud Platform, I believe it’s the most cost-effective cloud computing platform that fits needs of our organization.

Work cited

[**https://kinsta.com/blog/google-cloud-hosting/**](https://kinsta.com/blog/google-cloud-hosting/)

[**https://cloud.google.com/docs/overview/**](https://cloud.google.com/docs/overview/)

[**https://cloud.google.com/storage/docs/per-object-storage-class**](https://cloud.google.com/storage/docs/per-object-storage-class)

[**https://medium.com/google-cloud/gcp-the-google-cloud-platform-compute-stack-explained-c4ebdccd299b**](https://medium.com/google-cloud/gcp-the-google-cloud-platform-compute-stack-explained-c4ebdccd299b)

[**https://en.wikipedia.org/wiki/Google\_Cloud\_Platform**](https://en.wikipedia.org/wiki/Google_Cloud_Platform)